Experiences of malaria and attitudes to malaria prevention among nurses in Tanzania

- An interview study

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ABSTRACT
The aim of this qualitative study was to explore experiences of malaria and attitudes to malaria prevention among nurses from Tanzania. Eleven nurses from three hospitals in northern Tanzania were interviewed. The analysis resulted in following categories: The malaria situation was so severe at that time, Being both nurse and parent, Hindrances in the battle, Sharing knowledge and There is a change. Ten out of eleven nurses had had malaria and all of them had been treated with anti-malarial drugs and many of them still had malaria regularly. They remembered times when the malaria situation was worse and the disease killed many more people. Having children resulted in constant worry. Being a nurse had advantages because they lived close to the hospitals so they could initiate early treatment and because they could afford to take preventive measures. Hindrances in the battle against malaria were other people’s lack of knowledge, poverty and difficulty to change lifestyle and environmental conditions. They were proud to be nurses and knowledge was their strength. There were geographical differences in how much hope they had for the future. The nurses in Zanzibar were the most optimistic. The nurses supported the governmental actions against malaria.

Keywords: Nursing, Tanzania, malaria, prevention, self-care theory
SAMMANFATTNING


Nyckelord: Omvårdnad, Tanzania, malaria, prevention, self-care theory
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### Abbreviations

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<tbody>
<tr>
<td>ACT</td>
<td>Artemisinin combination therapy</td>
</tr>
<tr>
<td>AL/ALu</td>
<td>Artemether/Lumefantrine</td>
</tr>
<tr>
<td>BS</td>
<td>Blood slide</td>
</tr>
<tr>
<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
</tr>
<tr>
<td>ITN</td>
<td>Insecticide-treated nets</td>
</tr>
<tr>
<td>IRS</td>
<td>Indoor residual spraying</td>
</tr>
<tr>
<td>KCMC</td>
<td>Kilimanjaro Christian Medical Center</td>
</tr>
<tr>
<td>LLIN</td>
<td>Long lasting insecticide-treated nets</td>
</tr>
<tr>
<td>RBM</td>
<td>Roll Back Malaria</td>
</tr>
<tr>
<td>RDT</td>
<td>Rapid Diagnostic Test</td>
</tr>
<tr>
<td>RTI</td>
<td>Respiratory tract infection</td>
</tr>
<tr>
<td>SP</td>
<td>Sulphadoxine-pyrimethamine</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations (International) Children's Fund</td>
</tr>
<tr>
<td>UTI</td>
<td>Urinary tract infection</td>
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</table>
BACKGROUND

Malaria
Malaria is caused by a parasite called Plasmodium. There are five types of human malaria: *Plasmodium falciparum*, *P. vivax*, *P. ovale*, *P. malariae* and *P. knowlesi*. Plasmodium falciparum is the most lethal type of human malaria. The parasite is transmitted by the bites of infected female Anopheles-mosquitoes. Symptoms of fever and headache and vomiting usually appear 10-15 days after a mosquito bite. In infants, the symptoms can be more diffuse. If the infection is not treated, malaria quickly can become life-threatening, the patient can become unconscious, have severe diarrhea and develop shock. Malaria can be prevented and cured. Early diagnosis and prompt medication are two important parts of the treatment (Centers for Disease Control and Prevention [CDC], 2008; The World Health Organization [WHO], 2009).

Malaria worldwide
Malaria caused by *Plasmodium vivax* - also called the Uppsala fever - was a widespread disease in Sweden until the middle of the nineteenth-century, when people and animals still were cohabitant. With changes like increasing standard of living, better cattle management and the draining of marshes, the mosquitoes disappeared. The last case of malaria in Sweden was reported in 1939 (Jaenson, 1985, Bruce-Chwatt & Zulueta, 1980).

According to the World Health Organization, half of the population in the world is at risk of acquiring malaria. This leads to approximately 250 million cases of malaria annually and in 2008, this led to estimated 863 000 deaths. 85% of the malaria deaths in the world were among children under five years of age. People who live in the poorest countries of the world are the most vulnerable; especially pregnant women and children under five years of age in low-income countries in Africa (WHO, 2009).

In the millennium development goal number 6, the target is to have halted and to have begun to reverse the incidence of malaria and other major diseases by 2015 (The United Nations [UN], 2008). The World Health Organization announced the Roll Back Malaria movement (RBM) in 1998 (Nabarro & Tayle, 1998), with the goal of decreasing malaria deaths by half by 2010. The RBM partnership was launched by the WHO, UNICEF, UNDP and the World Bank, in an effort to provide a coordinated global response to the disease.
Malaria in Africa
Malaria is a copious problem in Africa, where every fifth childhood death is caused by malaria and a child dies from malaria every 30 seconds. Pregnant women risk spontaneous abortion, premature delivery or stillbirth. Malaria causes severe anemia which leads to low birth weight babies and contributes to the death of 10 000 pregnant women each year in Africa (WHO, 2009). Malaria is associated with poverty (Nabarro & Tayle 1998; de Savigny et al., 2004; WHO, 2009). ACT is the most effective form of anti-malarial treatment but a very expensive one, a treatment costs around half a US dollar, and very few children in Africa are actually receiving it (RBM, 2010).

Malaria in Tanzania
In Tanzania, malaria is the leading cause of morbidity and mortality (de Savigny et al., 2004). Tanzania has a population of 42.5 million people. In Tanzania, malaria causes approximately 11 million cases and 17 thousand deaths annually. 100% of the population is currently considered at risk for infection, with 75% living in high intensity transmission areas (Country profile, WHO, 2009).

In Zanzibar, the malaria burden was dramatically reduced between 2000 and 2007 due to distribution of ACT and insecticide-treated nets through public health facilities. Outpatient malaria diagnosis decreased by 77% and overall deaths in children decreased to about half (Bhattarai et al., 2007). This means that Zanzibar appears to be on course to meet WHO targets by 2010 and is one of four areas in the world that has turned the malaria trend effectively (World malaria report, 2009).

The Kilimanjaro region near the border to Kenya has a shorter period of malaria transmission than Kagera and Zanzibar (de Savigny et al., 2004).

Kagera region is situated in the north-west corner of Tanzania on the western shore of Lake Victoria and is one of the poorest regions in Tanzania. In 1997, there was an exceptional malaria period with an average of 820 positive malaria tests/month in Ndolage hospital (Uddenfeldt Wort, Hastings, Mutabingwa & Brabin, 2006). Kagera ranks first nation-wide in malaria incidence (Widmar, Nagel, Ho, Benziger & Hennig, 2009). In 2003, the Bukoba Town Draft Profile reported that 438/1000 inhabitants of the district of Bukoba had malaria.
(UN, 2003) and the official website states that malaria is the number one cause of death in Kagera http://www.kagera.org/aboutkagera/health.htm.

**Parasite resistance**

Misuse of malaria medicines and insecticides as DDT from the 1950-ies resulted in parasite resistance. In the late 1990-ies, hope has returned with a new combination of medicines and insecticide impregnated mosquito nets (WHO, 2009).

**Prevention**

*Insecticide-treated nets*

Night-time use of mosquito nets treated with long-lasting insecticide (LLIN) to prevent mosquito bites is recommended by the WHO (2009). Mosquito nets without treatment are not as effective as insecticide-treated nets (Matovu, Goodman, Wiseman & Mwengee, 2009). It is particularly important that pregnant women and children use insecticidal mosquito nets as they are the most at risk for acquiring the disease. Education prior to distribution LLIN use lead to high net coverage rates (Widmar, Nagel, Ho, Benziger & Hennig, 2009). The coverage must be more than 80% of the community members to have an impact (WHO, 2009; Fergusson Trust & Fergusson Trust, 2007). The Tanzanian government provides vouchers for subsidized nets to parents of children under five and pregnant women for TSH 2500 [US$2.80] (Marchant et al., 2010) and in Zanzibar, bed nets have been distributed to the most vulnerable groups (Bhattarai et al., 2007). Although ITNs are the most cost effective interventions against malaria, some unforeseen consequences of distribution of nets have been reported. LLIN have been used for drying fish and for fishing among residents of fishing villages along Lake Victoria. The main reasons were that the bed nets were cheap or free and that fish dried faster on the mosquito nets (Minakawa, O Dida, O Sonye, Futami & Kaneko, 2008).

Reduction of man-vector contact can also be achieved by wearing protective clothing that covers the arms and legs especially in the evenings, covering windows with wire mesh and closing doors to prevent mosquitoes from entering the house, using repellents and spraying rooms with insecticide before going to bed (Fergusson & Fergusson, 2007).

*Indoor residual spraying*

IRS Spraying of insecticides indoors to kill mosquitoes resting on the walls and roofs is recommended. The most efficient and effective insecticides are DDT and pyrethroids. They
have effect for up to 6-12 months (WHO, 2009). The question if DDT should be used has been discussed (Pluess, Tanser, Lengeler & Sharp, 2010) and there is a tension between environmental activists who want to forbid the use of DDT and health authorities in some countries who mean that it is a necessary weapon in the battle against malaria. The coverage of IRS should be about 80% for high impact (Fergusson & Fergusson, 2007; WHO, 2009).

**Environmental management**

Elimination of stagnant water, such as pools, ditches, pots, empty tins and plastic containers is recommended (Fergusson Trust & Fergusson Trust, 2007). Other examples of stagnant water where the malaria vectors can breed are rice fields, swamps, irrigation water and tire tracks (CDC, 2010) which shows the difficulty in eliminating all stagnant water.

**Diagnosis**

The common diagnostic technique for malaria is the examination of stained blood films under the lens of a microscope (Warhurst & Williams, 1996). Published research suggests that an anti-malarial drug will be prescribed in at least 45% of patients who have a negative blood slide result. Accurate diagnosis is an important part of good malaria management and minimizes the risk of overuse. Rapid diagnostic tests (RDT) have recently been recommended because they are easy to use, give fast results and are increasingly affordable (Msellem et al., 2009; Ansah et al., 2010).

**Treatment**

Prompt treatment is recommended for all symptoms of the disease, within 24 hours if possible. Early treatment will shorten the duration of malaria and prevent complications. To avoid resistance, the best available treatment, artemisinin-based combination therapy (ACT) should be used. ACT is used to reduce the chances of *P. falciparum* becoming resistant to either drug (WHO, 2009; Bhattarai et al., 2007). An ACT treatment costs half an American dollar and consists of a tablet a day for three days. The treatment is very potent and eradicates almost all of the parasites in the body. In highly endemic areas, preventive doses of sulfadoxine–pyrimethamine should periodically be given to pregnant women to clear placenta of parasites (WHO, 2009).

Appropriate drugs should be given in adequate dosage and correctly administered during the period of time recommended (Fergusson Trust & Fergusson Trust, 2007). Coartem has become the national medicine of choice to treat malaria in Tanzania, known as “Alu”. The
availability of Lumefantrine (one of the components in AL) is enhanced by food, particularly fat. It appears that only a very small amount of dietary fat is necessary to ensure optimal efficacy and that the fat content of standard meals or breast milk in sub-Saharan Africa is adequate (Premji et al., 2008).

Traditional healers and herbal treatments play a role in malaria treatment in Tanzania and caregivers can often advice people to seek help from a traditional healer (Gessler et al., 1995; Foster & Vilendrer, 2009).

**Education**

Nurses and midwives form the backbone of the health systems of all countries in the developing world and have a major contribution to make in attaining the Millennium Development Goals. They also have the greatest contact with service users, and are therefore the greatest potential for both preventive education and bridging the health service and community gap. Nurses and midwives can, and often do, provide a strong role model for other parts of society (Green, 2006; WHO, 2009). Nurses in malaria endemic areas have an important role to play in giving health education to the community. They should teach people to seek medical help promptly whenever a family member is sick to get early diagnosis and correct treatment. They should also teach people that ITNs help prevent malaria and that controlling mosquito breeding sites is important to break the man-vector contact cycle (Fergusson Trust & Fergusson Trust, 2007)

**Deborah Orem’s Self-care theory**

Orem defines self-care as practice of activities that individuals initiate and perform on their own behalf in maintaining life, health and well being. The main thesis of Orem’s theory of self-care is that people generally have motivation and capability enough to maintain health and counteract sickness (Kirkevold, 2000; Current Nursing, 2010). The nurse’s role is to empower individuals to take care of their own health through self-care health activities and education to enhance wellness (Mapanga & Mapanga, 2000). But knowledge does not necessarily lead to change of behavior (Nutbeam, Macaskill, Smith, Simpson & Catford, 1993).

**Statement of purpose**

Nurses are responsible not only for promoting health in the community, but also for promoting the health of their family members. Much has been written about malaria
particularly concerning medication but not as much about attitudes to prevention among staff. The nurses’ role needs to be highlighted to bridge the gap between theory and practice.

**Aims**
To explore the experiences of malaria and attitudes to malaria prevention among nurses in Tanzania.
To describe what nurses in Tanzania do to prevent malaria in their everyday life.

**METHOD**

**Design**
Qualitative interview study with an explorative design.

**Preconceptions**
The author of this thesis was born in the multi-cultured country Malaysia and has lived there for ten years and has also gone to school for one year in India. As an adult she has visited non-governmental organizations, hospitals and other health care settings in Malaysia, South Africa, Brazil and Ethiopia before travelling to Tanzania. She works on an Ear, Nose and Throat ward in a university hospital in Sweden. Among the nursing tasks, one is to give telephone advice. During every shift, many individuals call for different reasons. The questions can come from people who have severe illness and need acute care or concern very simple matters. The nursing knowledge that has been accumulated throughout the years has also been useful in everyday life. Family members and friends have asked for advice. Knowledge about self-care has been an effect of professional experience. But knowing which actions to do to stay healthy is not always enough to implement them. Overweight and smoking is not uncommon among health workers, for example.

**Sample**
A purposive selection of nurses from hospitals in three regions of Tanzania; in Zanzibar, in Kilimanjaro and in Kagera was obtained. In Zanzibar, the prevalence of malaria has been reduced by half in three years (Världsinfektionsfonden [VIF], 2007). In Kagera region, malaria is the number one cause of death and the area is endemic to malaria and in Kilimanjaro region, the length of the malaria transmission season is shorter than in Kagera and Zanzibar (de Savigny et al., 2004). As pregnant women and children under the age of five
are the most vulnerable to malaria, the ambition was to find nurses who had children of their own, if possible under the age of ten.

To reach material diversity, both male and female nurses with a wide age range and different experiences were interviewed. Criteria for inclusion were that the nurses could speak and understand English well and have children under the age of ten. The reason to select nurses who could speak English well was to make the interviews possible, as Swahili was not an option. The reason to choose nurses with small children was an attempt to reach the current everyday life and not only memories of earlier days. The number of interviewees was not determined, the interviews continued until material saturation was reached. Saturation means that no new information is obtained (Polit & Beck, 2008) and the amount of material is enough to develop properties of the categories (Glaser & Strauss, 1967). However there was a limit; no more than 15 interviews would be conducted, due to time limits and according to evidence-based recommendations regarding sample sizes for interviews (Malterud, 1998; Guest, Bunce & Johnson, 2006). Saturation was reached after eleven interviews.

Description of the nurses
Eight women and three men from three hospitals in Tanzania were included in the interview study. Their ages were 26-58 years. Their collected professional experience was vast. Following job sites were represented: Primary care, Medical ward, Surgical ward, Eye ward, Urology ward, Pediatric ward, Maternity ward, Operating theatre and Intensive Care Unit. The interviews lasted between 17 and 37 minutes.

Data collection method
Unstructured interviews with eleven nurses working in three different hospitals in Tanzania were obtained. The interviews started with the following question: ”What are your experiences of malaria?” followed by ”Please tell me what you do to protect yourself and your children from malaria!” The nurses were encouraged to talk about the measures they take for malaria prevention. The interview questions dealt with the nurses’ experiences of and attitudes to malaria prevention in their everyday life. Follow up questions were asked, such as:”What do you mean?” ”Can you tell me more about that?”, “What did you do?” to get as much material as possible. The interview questions were developed by the author after reading current literature and with advice from Margareta Sanner, associate professor PhD at the Department of Public Health and Caring Sciences at Uppsala University. The objective
has been discussed with Ingrid Thorell-Ekstrand, PhD RN at the Karolinska Institute, who has been in Tanzania several times.

Having Orem’s self-care theory in thought, additional questions were asked, such as:
- How does the fact that you are a nurse affect the way you prevent malaria?
- Are there differences in your prevention actions from the people in the villages?
- Is there a difference in your family's/children's health compared with other non-medical people's health?
- Do you act as a nurse after working hours?
- Do you have hope that malaria will disappear?

Procedure
Interview preparations were performed according to Kvale’s guidelines (Kvale, 1997). A pilot interview was conducted with a nurse from Tanzania visiting Sweden in February to test the interview questions, but the results were not included in the analyses. After the first interview, the initial questions were modified to better reach the aims of the study.

A letter (Attachment 1) was sent in February by e-mail and by airmail to the hospital chief executive officers of Makunduchi Hospital in Zanzibar, Kilimanjaro Christian Medical Centre (KCMC) in Kilimanjaro Region and Ndolage Hospital in Kagera Region. Getting in contact with Makunduchi Hospital in Zanzibar was not easy. But by searching the internet, one e-mail address and a telephone number to an organization supporting the hospital, situated in the United Kingdom could be found. Permissions to interview the nurses were obtained from each hospital in question and the interviewees were asked if they wanted to participate before the interview began. The interviews were recorded using one MP3-player and another MP3-player was at hand for back up. All of the interviews took place in the three hospitals instead of in cafeterias as it was planned. The reason was that no nurse would like to stay for an interview after working hours according to their employers, so they were interviewed during their work shift when it was possible for them to leave their work. The nurses were asked to reveal their age but not their name. Thus, no names are recorded. In the end of every interview, the nurses were asked if they had any questions or if they would like add anything. All of the nurses were friendly and willing to share their thoughts and experiences. The interviews were voluntary and did not lead to any economic benefit or compensation. Not even a cup of coffee or tea as it was planned.
In Makunduchi hospital (March, 16 and 18), the plan was to leave the information letters (Attachment 2) and to come back the following day, but the hospital manager suggested that a few of the interviews took place the same day. The change of the arrangement saved a lot of time. The hospital manager, who also was a nurse, selected nurses that met the criteria for inclusion and gave them the information letter. After giving informed consent, the interviews were conducted in quiet rooms in the hospital. Two interviews were conducted on the first day and one on the next.

On the day of arrival at KCMC (March 22- 24), the information letters were given to a nurse assisting the hospital matron and the interviews were planned to take place on the following day. The assisting nurse selected nurses that met the inclusion criteria and gave them the information letter. When the nurses had given informed consent, times for the interviews were planned. Since merely women had been interviewed on the second day, a new time was planned on the third day for an interview with a male nurse. The interviews took place in empty rooms near the nurses’ wards. Some of the interviews were contaminated by loud noises disturbing the quality of the recording.

In Ndolage hospital (April 12- 14), the formal permission to interview the nurses was not obtained until the day of arrival due to lack of internet connection. Nevertheless, upon arrival, everything was prepared and arranged for the visit. The information letters were given to the hospital matron who selected nurses that met the inclusion criteria. The nurses were given the information letters and were asked if they wanted to participate in the interview study. The interviews were conducted during the following two days. The interviews took place in the hospital during working shifts, in empty rooms adjacent to the nurses’ wards. Unfortunately, there were disturbances in some cases.

**Ethical considerations**

Ethical principles for nursing research are considered in this study (Polit & Beck, 2008). Permission to perform an empirical study in an educational context is not needed according to the local ethical committee. Permission to execute the study was obtained from the chief medical officers of each hospital in question. The interviewees were given verbal and written information (Attachment 2). Only nurses who had given their informed consent were interviewed. Their participation was voluntary and could be discontinued at any time without explanation. The interviewees were only asked to reveal their age and are therefore
impossible to identify. The recorded interviews and the transcriptions have been handled confidentially (Codex, 2009) and the recordings have been deleted. The questions did not regard any subject that could be understood as insulting but could have been sensitive for the nurses if they felt stressed by expectations to be responsible for the health of their family members.

**Data analysis**

The interviews were analyzed by a modified qualitative content analysis which involves several steps (Table 1) according to Graneheim and Lundman (2004). The author performed the transcription of the interviews within days after each interview. The verbatim transcriptions were read through several times and were used as units for analysis. Every row in each transcription was given number, the first beginning with 1001, the second with 2001 etc, so that every row would have a unique number and would be easy to find. All of the sentences and phrases with information in the units for analysis (the transcriptions) that were relevant for the research question were picked out, in some cases with surrounding words to maintain meaning and context. These selected sentences or phrases are called meaning units. According to Graneheim and Lundman, the meaning units then should be condensed in order to shorten the text without losing any content. This step was not done in this thesis, which makes the analysis modified. The meaning units were coded and coloured according to its code. Then they were grouped in six categories according to the content, code and colour and placed in a chart (Table 2). The categories resemble the core message of the interviews. The meaning units, categories and subcategories were discussed and determined together with the supervisor. The citations have been adjusted in a slightly modified verbatim mode to enhance understanding and to minimize embarrassment for the interviewees (Malterud, 1998).

**Table 1.** An example illustrating the steps in the modified qualitative content analysis.

<table>
<thead>
<tr>
<th>Meaning unit</th>
<th>Subcategory</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;What I have seen here, Malaria now in Makunduchi and Zanzibar in general, it is reduced. It is nearly not a problem now. Ja. Nearly not a problem. Because every member... in 2002, malaria was the first in the five top ten diseases and this occurred in most</td>
<td>Hope for the future</td>
<td>There is a change</td>
</tr>
<tr>
<td></td>
<td>Remember earlier days with severe malaria</td>
<td></td>
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<td></td>
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</tbody>
</table>
of the health facilities. Malaria was the first. But now it seems that malaria is not a problem, because it is not included in five, top five diseases. And I’ve seen several measures taken by the government to reduce malaria. Like now, I think, they spray in the houses.”

Hope for the future

Governmental actions

There is a change

There is a change

RESULTS

The analysis resulted in the following five categories with subcategories: It was so severe at that time, Being nurse and parent, Hindrances in the battle, Sharing knowledge and There is a change.

Table 2. Overview showing categories and subcategories.

<table>
<thead>
<tr>
<th>The malaria situation was so severe at that time</th>
<th>Being both nurse and parent</th>
<th>Hindrances in the battle</th>
<th>Sharing knowledge</th>
<th>There is a change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remember earlier days with severe malaria</td>
<td>Constant worry</td>
<td>Lack of knowledge</td>
<td>Responsibility and pride</td>
<td>Hope for the future</td>
</tr>
<tr>
<td></td>
<td>Advantages of being a nurse</td>
<td>Poverty</td>
<td>Diagnosis and treatment</td>
<td>Belief in governmental actions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Difficulties in changing lifestyle and environmental conditions</td>
<td></td>
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</tbody>
</table>

The malaria situation was so severe at that time

Remember earlier days with severe malaria

All of the nurses except one said that they had had malaria. But five years ago, this nurse had had a fever and even though her blood slide was negative, she was treated with anti-malaria because of silent signs and symptoms. The others had had malaria several times. Some of them had been admitted due to malaria. Some even had had malaria a week before the interview. Many symptoms were mentioned, mostly head ache, nausea and vomiting, fever, fatigue, dizziness and loss of appetite.
“Myself? I had suffered malaria is about... on Easter - it was on fourth, isn’t it? I was at home. Then... when I got to the laboratory, it revealed +1 malaria parasite. Then I took Alu.”

They had not had mosquito nets when they were children and woke up in the mornings with red spots all over their bodies from malaria mosquitoes sucking blood during the night. There was always somebody sick in their family or neighborhood. A general opinion among the nurses was that as they grew older, the malaria-free periods became longer and the symptoms less severe. They emphasized that malaria was endemic and fatal. One nurse called malaria “A killer.” In the end of the 1990-ies, there was a flood in Kagera Region that resulted in many malaria cases. The pediatric wards were overfilled with children sick from malaria. Many of them died due to anemia.

"My parents lost four children... They said the second born died, the fifth born died. I tried to ask my parents: What happened? What was the cause of their death? When they told me, I saw that the signs and symptoms was malaria. The others who died were under-fives.”

**Being both nurse and parent**

*Constant worry*

Having children who always are at risk for getting malaria was a constant reason to worry. When the children were under five, they were the most vulnerable. There was always the risk that malaria could lead to complications, their children could get handicapped or die. If the nurse and parent should have to be admitted, it could mean a problem for the rest of the family because of the loss of income.

“As the head of the family, it is a big problem to be admitted. They depend on me. That's why I don't like to wait until malaria is positive. A positive test may be a problem.”

The majority of the nurses lived in hospital compounds. Their neighbors were mostly hospital staff. Most of the nurses lived in houses that had doors and windows with wire mesh. Dressing their children with long trousers and t-shirts with long arms and keeping them indoors with the windows and doors closed in the evenings was common. But keeping the children indoors in the evenings was difficult, because the children often wanted to be outside and play while their mother was preparing food. Making sure that the children used treated mosquito nets every night was the most important preventive measure. The children did not easily accept mosquito nets because of the heat, but their parents forced them to use them.
"But myself I don't want to see even one hour, my baby sleep without a net. I'm afraid."

The nurses perceived that their prevention actions were very different from other people’s actions. Most nurses claimed that the result was that their children were healthier than other children. But, despite all efforts, most of the children got malaria. One nurse was proud and thankful that his two-year son still hadn’t had malaria while another nurse was discouraged. The question was not “if” his children would get malaria, the question was “when”.

"But these under fives. I can't say anything. Any time they can suffer. Either on the beginning of the month or at the end of the month. I expect anything. That is malaria."

One nurse had taught her children to formulate their symptoms. She was proud that her seven year old son could express that he had a fever, head ache, was drowsy and that he needed treatment. The nurses said that they observed the children’s symptoms and behavior. When they noticed changes and knew something was wrong, they would think: Why is he sleepy? Why doesn’t she want to eat?

"Then I have to ask: If not malaria, what other problem can she suffer from? But the first one it is malaria, others may contribute, but not like malaria."

When the children were sick, the nurses said it was important to feed them with small amounts of food and drink frequently. One nurse was particular about weighing the children every month to ensure that they were gaining weight.

"Then controlling the body weight, when the kid is increasing the body weight, I know that even the immunity is increasing. Ja. If not, I know that anything can happen."

Advantages of being a nurse

One important advantage of being a nurse was that they had knowledge about prevention and treatment of malaria. Another advantage was the proximity of medical services. Living close to medical care, laboratory and pharmacy made it possible for them to give their children and themselves treatment very early, before they got severely sick.

"So, it is different to me ... as those who don't know because they can see a child a week, sleeping, and they fail to take action immediately."
A third advantage was the fact that they could afford to buy treated mosquito nets, window mesh and to give their children a well balanced diet. Having the possibility to give the children a good diet was mentioned to be one of the reasons that their children recovered quickly.

“I have money so my children can eat, drink milk in the morning. At 10 am she can eat maybe porridge with the all thing, with fruits. And during the day can eat food which is complete.”

One nurse talked about the herbal medicine Artemisia, which is one of the components in the anti-malarial drugs called ACT (Artemisinin-based combination therapy).

“They have done research and they provide it in a bag. It is quite expensive. One kilogram, is 10 000 Tanzania shillings. But it can take a long time to finish it. You take a small amount, you pour it in water, then you ... It is bitter, but not so much. So, children they can drink. And it helps to reduce, it prevents if you give it frequently in intervals. I always use it when they are not sick in order to prevent malaria.”

**Hindrances in the battle**

*Lack of knowledge*

The nurses considered that lack of education and illiteracy were the main reasons for people to neglect malaria prevention. The general standard of knowledge was very low according to the nurses. The nurses expressed that people believed any fever was malaria, that people with fever could stay at home and only take paracetamol and that they didn’t come to the hospital immediately. Some parents came with their children too late when they already had convulsions or were very weak. When they treated malaria, they often didn’t finish the doses and they didn’t take the tablets in the right intervals with risk to develop drug resistance. The nurses said that pregnant women could wait for five months before going to the hospital, many didn’t get malaria prophylaxis.

“For my side, I can say that they did not practice properly. I think that this is lack of knowledge. They don’t understand what is going on concerning this prophylaxis. Sometimes they think that ... Why should I buy these drugs, I am not sick.”
Poverty
The nurses stated that people were poor and prevention was expensive. People’s highest priority was to find food for their family. Most people couldn’t afford to live in houses with doors and windows with mesh wire, so they were more exposed to malaria mosquitoes.

“..., because prevention … is costly. For the community, for the people. They need mosquito net, they need treatment. They need to have to put net in the windows, to close the windows very early to prevent mosquito bites for the people. For me it is not so difficult but for others…”

Most villagers didn’t have money to buy well-balanced food. Other expenses like the price for transportation, medicine costs and hospital fees, made it difficult for them to decide to seek medical help.

“They know that to come to hospital is expensive. The cost … it costs much. To hire a transport, or to go by bus, to buy the medicine, and the queue of the people. … It is overcrowded of people when you come to hospital. You are going to stay there for a day before seeing the doctor.”

One way of saving money was to go use traditional medicine, which could help sometimes. People commonly used roots and leaves from trees that are called mwarobaini. Even young leaves of pawpaw (papaya) were used as local medicine to treat malaria.

“There is a, there is a tree which used to treat malaria. They believe that it treats malaria. Here in Zanzibar, we call it ntunda or mwarobaini. You put leaves or roots in water and drink it. It is very bitter. But they believe it treats malaria. Most of them know, it is very common”

Using local medicine saved a lot of time, because it took a long time to get to the hospital and await treatment. Some traditional local medicines could be dangerous for pregnant women and could lead to stillbirth, because of insecure dosage.

“But, we find it, it is more dangerous. … they want to use the local drugs .. They found that the mother can not deliver, the baby already is died already, because of… fetus distress, yes. Because of that local drug.”

Going to a witch doctor was another way to save time and money.

“Others, when the children are sick, they don’t come, they do not come to hospital. Because of the long waiting time, mm. So they get a short cut when they go to the witch doctor. Some give local treatment themselves. That’s the problem.”
The nurses had different theories about where the concentrations of malaria mosquitoes were the largest. The main opinion was that the mosquitoes came from other places. Certain areas were considered to facilitate mosquito-breeding, especially coastal regions and places where rice was cultivated. The one opinion that they had in common was that there was no severe malaria in the cities because urban citizens generally had better education and income than people living in the villages. One nurse said that malaria was very rare in his village in his childhood, but that malaria mosquitoes had come there now because of people moving around, searching for jobs and spreading the disease.

“They come from Morogoro to Tanga, to Kigoma. They are going to... they are going to share the malaria they came with. They spread malaria.”

**Difficulties in changing lifestyle and environmental conditions**

The nurses thought that many people didn’t use mosquito nets because they were not part of the lifestyle and because of the heat. Mosquito nets provided by the government could be thrown away, sold or used for fishing. Some nurses had heard people complain about difficulty to breathe when they slept under a net. Many people didn’t like hospital treatment and going to hospital was not part of the life style.

“Ja, because when they get the treatment and they found that the child is drowsy, because all that get the malaria are drowsy, they think the child are going to die now, so they avoiding to come to the hospital....Because ..they don't like the hospital treatment. Most people they die at home. They die at home.”

The importance of cleaning the environment was mentioned by all of the nurses. Growing plants near the house posed a risk because of the possibility for mosquitoes to breed in the trees. Therefore, cutting the grasses and keeping plants away from the house was essential. Pots and coconut shells should be destroyed or emptied, so that no water would allow mosquitoes to breed there. The nurses were worried when people in their surroundings didn’t clean the environment or cut the grasses near their houses because those bushes adventured the health of their family.

“It is still a problem, because we stay with nearby neighbors, but they do not like to clean their bushes so that we can remove those things which can make mosquito to come in our room, in our area. Because we are still nearby, the transmission will be easy and we will get problems.”
Sharing knowledge

Responsibility and pride

The nurses expressed a strong feeling of responsibility for their community. They shared the opinion that the biggest difference between the nurses and people in general was that the nurses knew how to prevent and treat malaria. One nurse said that their job description declared that nurses had a responsibility to assist even when they were out of work. They hoped to apply their knowledge wherever it was needed. They educated people about the importance of malaria prevention and they felt that people listened to them. There were also groups where men and women met in the community, where they could use the opportunity to talk about malaria. They willingly talked to neighbors, friends and other people who asked for advice, but some said they had very little time to do talk about malaria or other health related questions after working hours. Other chores at home, like cooking and farming also had to be done.

"Neighbors... They use to come to me to get advice. .. I advice them to go to hospital to take a blood slide first. Then to go to the doctor. Always I advice them that. Because it is very important to know the result of a blood slide. And to treat malaria early is very important also. And then I educate them about the cleaning of the environment."

Diagnosis and treatment

When a person had malaria symptoms, the common advice was to check a blood slide. The nurses pointed out that there were a number of diseases that could cause fever such as typhoid. The nurses talked about the difficulty in differentiating malaria from meningitis, which also can lead to fever, head ache, nausea, dizziness and vomiting. Some people bought anti-malarial drugs in the dispensaries without checking a blood slide first. Sometimes people were told that the diagnosis was not malaria, but by the time they got to a hospital, the patient could have acquired severe health problems, perhaps cerebral malaria.

"It makes us have a high number of deaths of malaria because of missed diagnosis of infections and this is because of poor investigation.

The nurses said that they usually checked a blood slide and discussed the result with a doctor, who often prescribed an anti-malarial drug “according to signs and symptoms” even if a blood slide was negative.
“We don’t rely on that BS (blood slide) if it is negative. If the symptoms show that it is malaria, we give treatment. It can not be seen by the BS, the slide, but it can be positive. If you omit to give them the drug, then later they become severe.”

Most nurses would start anti-malaria medication, especially if they were far from home and if a child had typical symptoms of malaria. They would not wait until the following day to take a new blood slide and take the risk to see the children’s condition deteriorate. Only three nurses would not treat their child if it had a negative blood slide.

“If is negative, you can’t treat malaria. You can find another cause of... maybe the signs, maybe he has got another disease, like for the child, he can have the disease UTI or other diseases. ..To differentiate malaria from meningitis... For malaria, you can take blood slide for malaria. And for meningitis, you can take spinal fluid.”

The nurses mentioned many anti-malarial drugs, mostly “Alu”. The ACT drugs were effective and it often took only a few days to recover. Pregnant women were given SP (sulphadoxine-pyrimethamine) as prophylaxis twice during the pregnancy. It was mentioned that anti-malarial drugs could cause side effects like dizziness, and loss of appetite. Drugs with low side effects were more expensive. One nurse talked about her baby, who had had malaria every second month. In addition to the symptoms of malaria, such as loss of appetite, he had problems with side effects of the anti-malarial drugs. These made the baby’s state deteriorate.

“He didn’t move. For the first time, the fever was high. And then baby become sicker ...because of the side effects of the drugs. It made the child sicker than before. My baby was weak and he could not breast feed very well. I was confused and it embarrassed me.”

Changing the anti-malarial drug had effect.

“But one doctor advised me to use Alu, so I gave this Alu for the first time and he, we have stayed for four months without the baby getting a problem of malaria.”

There is a change

Hope for the future

In Zanzibar, the nurses were the most optimistic about the future. One nurse said that Malaria was nearly not a problem in Zanzibar anymore and is not included in the top five diseases.
“I think malaria cases which become positive are very rare, very rare now. We try to check blood for malaria to as many as patient come here to the hospital, but mostly, they become negative. So, it seems that malaria now is not a, is not a big problem in Zanzibar.”

In Ndolage hospital, the numbers of children admitted in the pediatric ward were fewer than they had been before. Earlier there could be 150 children. Now they were only 20-30. More and more people in the surroundings used treated nets. Indoor residual spray had been carried out in the community. This gave the nurses in Ndolage hospital flickering hope. Some mentioned that it could lead to less experienced nurses.

“Perhaps you have passed through the pediatric ward. There are few numbers of kids. The student nurses who are going to the clinical area will get a problem to know signs and symptoms of malaria. Because of few numbers of kids who are suffering from malaria. Therefore for the future it is possible to eradicate malaria in our catchment area.”

In Kilimanjaro region, malaria was still a big problem. There was a little change to be noticed, especially in the interior of the country. The differences could only be noticed in the towns, where people were more educated and had a better standard of living.

“I see, there is a significant change. A little bit, but not very much. Still the problem is there. I’m sometimes down tuned, in the trend we are going. The change can be in town, we have changes where we can get many educated also people and healthy facilities available. But I don’t know, is it the same to the interior? That’s my doubt! All this happens to the towns. But in the interior, the situation is worse. Still the child can suffer three days without being taken to hospital. Given these herbs and everything ...until they are taken to the hospital in a serious condition.”

Belief in governmental actions

Several measures had been taken by the government. All households with pregnant women and children under five were given insecticide-treated mosquito nets without cost or to a subsidized price. There was an ongoing campaign to spray all households with insecticidal spray (IRS), which the nurses supported. Pregnant women are given malaria prophylaxis.

“And maybe I can say that one month ago our president talked about prevention measures, he gives us, supplies nets to all houses for under five children, we receive those net.”
DISCUSSION

The analysis resulted in following categories: The malaria situation was so severe at that time, Being both nurse and parent, Hindrances in the battle, Sharing knowledge and There is a change. Ten out of eleven nurses said that they had had malaria and many of them still had malaria regularly. They remembered times when the malaria situation was worse and killed many more people. Having children resulted in constant worry. Being nurses had advantages because they lived close to the hospitals so they could initiate early treatment and because they could afford to take preventive measures. Hindrances in the battle against malaria were other people’s ignorance, lifestyles and poverty. They were proud to be nurses and knowledge was their strength. There were geographical differences in how much hope they had for the future. The nurses in Zanzibar were the most optimistic. The nurses supported the governmental actions against malaria.

Discussion of results

All of the nurses knew how malaria was spread, how it could be prevented and cured. They had experience of malaria being worse and killing more people when they were younger. Prompt treatment within 24 hours, especially for children under five (WHO, 2009), was something that the nurses knew was important.

The nurses in Zanzibar had noticed a distinct decrease in the malaria cases and deaths over the last years which is a trend observed internationally (Bhattarai, Ali, Kachur, Mårtensson, Abbas & Khatib, 2007; World malaria report, 2009). The change was not as clear in Kilimanjaro or Kagera, although the nurses had noticed that the malaria cases had decreased over the last years and believed it was due to the governmental actions such as increased use of ACT, indoor residual spraying and distribution of treated mosquito nets. But an assessment of the distribution of insecticide-treated mosquito nets to pregnant women has showed that the coverage is low among the poorest women in Tanzania (Marchant, Schellenberg, Nathan, Armstrong-Schellenberg, Mponda, Jones et al. 2010).

The nurses talked about the importance of using treated bed nets every night, many of them even covered their children with nets when they were napping at daytime. They found that the general population disliked using bed nets and that they could sell them, put them away or use them for other purposes, like fishing. This has also been found in a study among residents in fishing villages in Kenya (Minakawa, O Dida, O Sonye, Futami and Kaneko, 2008).
According to the nurses, the main reason that it was difficult to eradicate malaria in Tanzania was people’s lack of knowledge and illiteracy. Secondly, malaria prevention and treatment were considered by the nurses to be difficult to achieve because of poverty, which coincides with other research saying that poverty is one of the main reasons that malaria still is a problem in low income countries (Nabarro & Tayle, 1998; de Savigny et al., 2004; WHO, 2009). A third reason mentioned was that prevention was difficult to implement because of resistance to change lifestyle, such as growing plants near the houses, sleeping without bed nets and allowing stagnant water. The author only found a few references claiming that cleaning the environment was important (Fergusson Trust & Fergusson Trust, 2007; CDC, 2010), but all nurses talked in detail about the importance. On the World Malaria Day, April 25, Mwinyi Msellem, head of the diagnostic unit at the Zanzibar Malaria Control Programme, said “Also, we have a problem with people's resistance to behavioral change, particularly in keeping the environment clean and in the use of mosquito nets” (IRIN, 2010). Some people believe that malaria cannot be eradicated because it has always existed (Arned Senneby & Berengren, 2009) which can be a difficult attitude to change.

Using the plant mwarobaini was mentioned by some nurses to be a common method for treating malaria in a traditional way. This is confirmed by other research (Gessler et al., 1995), which also points out that although it is a popular belief that Mwarobaini can cure 40 different health problems, there is a danger of abortion in pregnant women if overdosed.

The nurses generally checked a blood slide when there were signs and symptoms and consulted a doctor for diagnose and treatment. But most of them would not hesitate to treat a family member with anti-malaria drugs even if the blood slide was negative. They explained that the blood slide would be understood as being not reliable. Other researchers have found that doctors for different reasons can prescribe an anti-malarial drug even if the blood slide is negative (Chandler et al., 2008). The policy to treat a patient with a negative blood slide was confirmed by a laboratory assistant in one of the hospital laboratories. The answer to the question why blood slides were taken in the first place if an anti-malarial drug was given even if the result was negative was that a blood slide could be negative one day and positive the next. People lived too far away to come back the following day to check another blood slide. Even though rapid diagnostic tests are recommended (Msellem et al., 2009; Ansah et al., 2010), no nurse mentioned the test.
The Artemisinin-based combination therapies (ACT) were often mentioned as the drugs of choice, because the nurses had experienced less side effects and quicker recovery which is consistent with prevalent research (Bhattarai et al., 2007). They noted the importance of taking the drugs at right times and in correct doses (Beer et al., 2009). Interestingly, one nurse talked about a powder prepared as tea made from the herbal medicine Artemisia, which she gave her children daily as malaria prevention. (In the abbreviation ACT, A stands for artemisinin, which is extracted from the plant Artemisia annua, In Swedish the name is sommarmalört, which is a relative to gråbo, Uppsala University homepage, 2007.)

The importance of diet was something that the nurses talked about repeatedly. One reason was that malaria itself caused loss of appetite, another that immunity increases with weight, a third that the side effects of the anti-malarial drugs can affect the appetite. According to research, fat has an important roll for the bioavailability of ACT (Premji et al, 2008).

The nurses live up to Orem’s theory (Kirkevold, 2000; Current Nursing, 2010), they have the capacity and have motivation to maintain health and counteract sickness for themselves and their families. But the question is if this theory can be applied to the general population in low income countries. According the nurses, the people in Tanzania did not have the capability to counteract sickness, mainly because of lack of knowledge and poverty. Therefore, general health education is important. Orem’s self-care theory is probably applicable for populations in wealthy countries like Sweden, where most people have education, income, social security and access to health care. As in Sweden and many other countries where malaria has been eradicated, increased standard of living and level of education can lead to a decrease of malaria in Tanzania.

As nurses have a close communication with the community, they have an important role to play in empowering people to make them participate in their own health decisions, teaching them about prevention and self-care in order to bridge the gap between theory and practice.

**Discussion of method**

There was very little nursing research on malaria in Tanzania to be found. However, as malaria is an enormous health issue and there was no limit in medical articles. The choice of subject and the focus on the lived lives of nurses in Tanzania will hopefully compensate for that in this thesis. The preparations of the interview study included communication over the
internet, which was not always working in Tanzania. This resulted in delay of permission. Shortage of electricity for the laptop limited the time for transcribing in Kagera. These experiences together with the daily malaria prevention actions, gave insights in the life conditions of the population in Tanzania. A reflexive diary was developed during the research process.

The authors’ experience from living in a multi-religious and multi-cultured, tropical country was found to be helpful. Being familiar with the life in a similar community made communication easy. The nurses were relaxed and the fact that the interviews took place on their home grounds can have made them more comfortable than if they had been interviewed in a cafeteria. The new-gained experience of life in Tanzania gave interesting insights in health conditions when compared to other African countries and Sweden. The nurses were found to have similar feelings of professional responsibility and pride. The nurse identity seems to be global.

The interviews took place during working hours according to the employers’ suggestions. The nurses knew that the interviews were expected to take 30-60 minutes, but the fact that they were on duty may have affected the results. Twice, the nurses had to end the interviews because they were called back to work. The nurse assistant in KCMC asked if the nurses had been given a cup of coffee or tea according to the information letter. But since the interviews did not take place in cafeterias as planned, unfortunately, they did not get anything to drink.

The MP3 recordings were significantly easier to handle than tape-recorders used in earlier interviews. The digital technique saved time and effort. For example, the recordings could be played in any computer and the speed could be adjusted which made it easier to transcribe. In some cases it was difficult to discriminate categories. All results should be represented and placed in a category. When these problems arose, the units of analysis were studied again to bring clarity.

All of the communication, the interviews and the transcriptions were carried out in English. This sometimes led to difficulties, especially when the recordings were contaminated by noise in the background. There could be misunderstandings due to different pronunciations, local use of words and contexts. The reason was that the English language was limited for some of the nurses who were interviewed. Questions sometimes had to be asked a few times in
different wordings before they were understood. The questions were occasionally leading but the nurses answered openly and did not seem to be led by the questions. The answers were at times neither easy to hear, understand nor interpret because of the Tanzanian English grammar and pronunciation but the contexts and their facial expressions made the meaning clear. To increase credibility, the author listened to the interviews many times and searched the internet to find explanations, spellings and use of unknown words to understand the contexts. For example, the word “mwarobaini” was not found in any article until it was spelt correctly.

The research method was appropriate to reach the results according to the objective of the research. The geographic and gender sample was purposeful to achieve diversity. When six interviews were completed, not much more new information was obtained in the rest of the interviews. Still, there were interesting details found in all of the remaining interviews, but there was not anything that changed the results, rather they confirmed what had been said. Hopefully the malaria situation in Tanzania will change to the better within a few years and make the results of this research outdated.

The transferability could be limited due to the fact that there were only 3-4 nurses from each hospital, which is a small number. They may not represent the whole group of nurses in each region. This research can only provide results hoping that readers may find it applicable to other contexts. The interviews were unstructured. The questions roughly followed a topic guide and the interviews could rather be called purposeful conversations. The ambition was to use common, everyday words reflecting the nurses’ world view. The order and the vocabulary in the interview questions were not exactly the same in all of the interviews, which may lead to bias according to Polit & Beck (2008) but Malterud (1998) means that the interview questions and follow-up questions should be adjusted to the interviewees.

**Reflections on the interviews**

Most of the nurses began answering the initial question about their experiences in a neutral way as if the interview were a test. They started talking about the disease itself, facts about its symptoms and how it was spread. When they understood that the interview concerned them as individuals and their personal experiences, they seemed to be a little surprised. In the end of the interviews, they were asked if they would like to ask or add something. There were two main questions: How will your research help the people of Tanzania? How do you treat
malaria in Sweden? This was interesting. The nurses were very surprised to hear that malaria was eradicated in Sweden in 1939 and it gave especially one nurse hope. Some even said “Congratulations!” If malaria could disappear in Sweden, perhaps it could disappear in Tanzania too. The only disadvantage of the decreasing numbers of malaria cases was the worry that the diagnosis would be missed because of lack of experienced nurses.

Mosquitoes are known to breed in trees. Therefore, banana trees and other crops growing near the houses pose a threat to the nurses. On the other hand, banana trees are inevitable and everyone depends on the food they produce in their *shambas* (small farms). This leads to a conflict between food and health.

**Conclusions**

Malaria is still common in Tanzania and much has to be done to eradicate the disease. Nurses have an important role to play in reaching out to the community and educating them in malaria preventive actions and self-care to maintain health. Hopefully, this study can contribute to a better understanding of the potential role that nurses can play - even off duty in their everyday life - in the battle against malaria.

**Relevance to clinical practice**

Attitudes to malaria influence compliance to preventive actions against malaria. Nurses can influence local attitudes if they can maintain their own health by acting preventively against malaria. The key role of the nurses and their importance in developing health care in the community should be emphasized.

**Acknowledgements**

I would like to thank the nurses from Makunduchi Hospital, Kilimanjaro Christian Medical Center and Ndolage Hospital, for sharing their thoughts and experiences of malaria. Also, I would like to thank Dr. Andreas Heddini for reading this thesis and for giving feed back.
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To: Hospital Manager
   Makunduchi Hospital, Zanzibar

   Chief Medical Officer
   Kilimanjaro Christian Medical Centre
   P.O. Box 3010, Moshi

   Doctor in Charge
   Ndolage Lutheran Hospital
   P.O. Box 34, Kamachumu, Kagera

On account of a field study at your hospitals performed by a Swedish master degree student

This is to confirm that one of our master’s degree students, Reg. Nurse Eva Nordblom, would like to perform a minor field study by interviewing five nurses at three hospitals in Tanzania about nurses’ experiences of and attitudes to malaria prevention in Tanzania. The hospitals in question are the Makunduchi Hospital in Zanzibar the Kilimanjaro Christian Medical Centre in Kilimanjaro and Ndolage Hospital in Kagera. The student will complete her thesis, advanced level in the end of May 2010 and will obtain a master’s degree in Caring Sciences.

The thesis, advanced level, requires an empirical study and Eva Nordblom has chosen to write about nurses’ experiences of and attitudes to malaria prevention. For this reason, she would like to interview approximately five nurses at each hospital. The questions will deal with the nurses’ private, everyday life and will concern neither their jobs nor their work place. To be included in the study, the nurses must be able to understand and speak English and have children under the age of ten.

Eva Nordblom will be in Tanzania for five weeks and travel from east to west, commencing in Zanzibar in mid-March and ending up in Ndolage in the beginning of April.

We would be very grateful if you could grant her permission to conduct nurse interviews before or after a working shift. The interview is voluntary and will not lead to any economic benefit or compensation apart from a cup of coffee or tea.

Yours sincerely,

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Information letter

Dear interview participant,

I am a Reg. Nurse at the Uppsala University in Sweden. In order to obtain a master’s degree in caring sciences, I will write a thesis based on an empirical study, which I hope to perform in Tanzania. The aim of my study is to investigate experiences of malaria and attitudes to malaria prevention among nurses in Tanzania and to describe what nurses in Tanzania do to prevent malaria in their own family. My goal is to interview at least ten nurses working at hospitals in Zanzibar, Kilimanjaro and Kagera.

I hereby ask you to participate in an interview study about experiences of and attitudes to prevention of malaria. The aim of the interview is to get a reflection of your experiences of malaria and the measures you take for malaria prevention in your everyday life. Although I have been granted permission to perform this study by your head of office, the interview will not concern your working place or your professional work. To be included, you should be able to speak and understand English and have a child under the age of ten.

The interview will be recorded and should therefore take place in a quiet room. It will last for approximately 30-60 minutes. The recording will be transcribed and analyzed, but will not be presented as an individual text in the assessment. The investigator will only reveal your age and gender, no more information about your identity will be asked. It is a voluntary interview and you are allowed to discontinue whenever you like without explaining why. The recording will be saved in a locked room and destroyed when the transcription is done.

The interview is voluntary and will not lead to any economic benefit or compensation apart from a cup of coffee or tea. A copy of the assessment will be sent to each hospital respectively, so it will be available for you to read.

Thank you for showing your interest.
Best regards,

Eva Nordblom, Master’s degree student at the Uppsala University, Sweden
Email: eva.nordblom@hotmail.com